

# Animal Science & Technology, Entry

**Levels: Grades 9-12**

**Units of Credit: Year (1.0)**

**CIP Code: 020211**

**Prerequisite: None**

## **COURSE DESCRIPTION**

Students will be exposed to a wide range of scientific principles, such as genetics, anatomy, physiology/nutrition, disease, pests, and management practices. The scientific processes of observation, measurement, hypothesizing, data gathering, interpretation, analysis, and application are stressed. Career opportunities and educational preparation are examined. Learning activities are varied, with classroom, laboratory, and field experiences emphasized.

## **CORE STANDARDS, OBJECTIVES, AND INDICATORS**

### **STANDARD**

**020211-01 Students will develop an understanding of the role of FFA in Agricultural Education Programs.**

### **OBJECTIVES**

- 020211-0101** Students will understand the history and organization of FFA.
- Students will explain how, when, and why the FFA was organized.
  - Students will explain the mission and strategies, colors, motto, parts of the emblem, and the organizational structure of the FFA.
  - Students will recite and explain the meaning of the FFA Creed.
  - Students will explain the purpose of a Program of Activities and its committee structure.
- 020211-0102** Students will discover opportunities in FFA.
- Students will describe how the FFA develops leadership skills, personal growth, and career success.
  - Students will identify major state and national activities available to FFA members.
- 020211-0103** Students will determine FFA degrees, awards, and CDEs.
- Students will explain the FFA degree areas.
  - Students will identify the FFA proficiency awards.
  - Students will explain various team and individual Career Development Events.

### **STANDARD**

**020211-02 Students will understand the benefits of a Supervised Agricultural Experience (SAE) Program.**

### **OBJECTIVES**

- 020211-0201** Students will determine the benefits of an SAE.
- Students will explain the importance of goals and career ladders.
  - Students will define supervised horticultural/agricultural experience.

- Students will explain the benefits of supervised horticultural/agricultural experience programs.

020211-0202 Students will determine the kinds of SAE programs.

- Students will explain the difference between entrepreneurship and placement SAE's.
- Students will describe research/experimentation and exploratory SAE's.
- Students will explain the characteristics of a good SAE program and student responsibilities that are involved.

020211-0203 Students will research possible SAE programs.

- Students will identify career interest areas in agriculture.
- Students will identify skills needed for career success.
- Students will explain opportunities for SAE programs.

020211-0204 Students will plan an SAE program.

- Student will identify the steps in planning an SAE program.
- Student will identify the parts of an annual SAE program plan.
- Student will discuss the function of a training plan and/or agreement in an SAE program.

020211-0205 Students will implement SAE programs.

- Students will discuss the importance of keeping records on an SAE program.
- Students will explain the types of financial records needed to support a chosen SAE program.
- Students will identify standards to follow in keeping records on an SAE program.

## **STANDARD**

**020211-03 Students will understand animal anatomy and physiology as it relates to nutrition, health, and management of domesticated animals.**

## **OBJECTIVES**

020211-0301 Students will demonstrate knowledge of animal bodily systems.

- Skeletal system.
- Muscular system.
- Respiratory system.
- Digestive system.
- Circulatory system.

020211-0302 Students will manage diseases and parasites.

020211-0303 Students will manage animal health.

020211-0304 Students will identify equipment used to maintain good animal health.

**STANDARD**

**020211-04 Students will determine nutritional requirements of ruminant and non-ruminant animals.**

**OBJECTIVES**

- 020211-0401 Students will meet the nutritional needs of animals.  
020211-0402 Students will identify nutrients and discuss their importance.  
020211-0403 Students will balance rations.

**STANDARD**

**020211-05 Students will explain animal genetics and reproduction.**

**OBJECTIVES**

- 020211-0501 Students will analyze the animal reproductive system.  
020211-0502 Students will describe natural animal reproduction.  
020211-0503 Students will discuss animal reproduction technology.  
020211-0504 Students will explain the uses of genetics in animal agriculture.  
020211-0505 Students will explain molecular biotechnology.  
020211-0506 Students will explain organismic biotechnology.

**STANDARD**

**020211-06 Students will describe meat grading.**

**OBJECTIVES**

- 020211-0601 Students will recognize signs of meat spoilage.  
020211-0602 Students will describe the various carcass characteristics that determine grade.  
020211-0603 Students will describe the influence grade has on preparation procedures and retail price.  
020211-0604 Students will grade cuts of meat.

**STANDARD**

**020211-07 Students will understand livestock science and production.**

**OBJECTIVES**

- 020211-0701 Students will explore the beef industry.
- List the common breeds of beef animals.
  - Explain how to select beef animals.
  - Identify types of beef production setups.
  - Describe beef marketing options.
  - Discuss facility needs for beef cattle.
  - Determine how beef product prices are affected by federal price supports and marketing orders.
- 020211-0702 Students will explore the dairy industry.
- Describe major internal parts of dairy cattle.
  - Discuss selection of cattle to encourage herd improvement.
  - Explain dairy marketing options.
  - Explore the seven major breeds of dairy cattle used for milking.
  - Describe how milk is produced, processed and graded.
  - Describe basic approved practices in the care and management of dairy cattle.
  - Discuss the cheese making process.

- Discuss the controversy surrounding the use of Bovine Somatotropin (BST).
- Determine how dairy product prices are affected by federal price supports and marketing orders.

020211-0703 Students will explore the swine industry.

- Describe common swine breeds.
- Explain selection of superior animals.
- Contrast various pork production systems and methods of marketing hogs.
- Identify facility needs of swine.
- Determine how pork product prices are affected by federal price supports and marketing orders.

020211-0704 Students will explore the sheep and goat industry.

- Discuss terminology associated with sheep and goat production.
- Describe sheep and goats as organisms and compare them externally.
- Identify common breeds of sheep and goats.
- Explain methods of producing sheep and goats.
- Identify facility needs of sheep and goats.
- Determine how sheep and goat product prices are affected by federal price supports and marketing orders.

## **STANDARD**

**020211-08 Students will identify current topics in animal science.**

### **OBJECTIVES**

020211-0801 Students will analyze present and future trends in the animal science industry.

020211-0802 Students will discover ways animals help people.

020211-0803 Students will identify ethics involved with animal production.

020211-0804 Students will discuss animal welfare and animal rights issues.

020211-0805 Students will describe animals used for genetic engineering and biotechnology.

## **STANDARD**

**020211-09 Students will identify career opportunities in animal science.**

### **OBJECTIVES**

020211-0901 Students will identify career opportunities in the animal science industry.

020211-0902 Students will use available handbooks, career information, and computerized career information delivery systems to aid career exploration or to formulate tentative career choices.

020211-0903 Students will match interests and aptitudes to an occupational area.

020211-0904 Students will develop goals related to future employment.

020211-0905 Students will obtain education needed for a job.

020211-0906 Students will identify occupational competencies.

020211-0907 Students will interview prospective employers.